

RapidLED Plug-n-Play Solderless Retrofit Kit

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Overview

The RapidLED Plug-n-Play Solderless Retrofit Kit allows for a complete LED retrofit to be completed without any special tools or soldering. The Plug-n-Play portion of the kit consists of terminal boards, which the LEDs and driver plug in to, LEDs and some jumper wiring. A single terminal board can support up to 7 LEDs and two terminal boards connected together can power up to 13 LEDs.

Please read through this entire document and contact us if you have any questions before powering up your kit.

Warnings – Read Me First!

***** Never plug in your LED driver to AC power until all wiring is complete *****

You will permanently damage most, if not all of your LEDs if you plug in your driver and then attempt to complete wiring. As with most LED drivers, when powered on without a load, there is an output capacitor that will charge up with electricity. When you power on a LED driver without a load and then add a load by plugging everything together, the output capacitor will discharge into the LED string. This will result in a split second of overcurrent and overvoltage, which will damage your LEDs. A bright flash and then nothing is usually indicative of this having occurred.

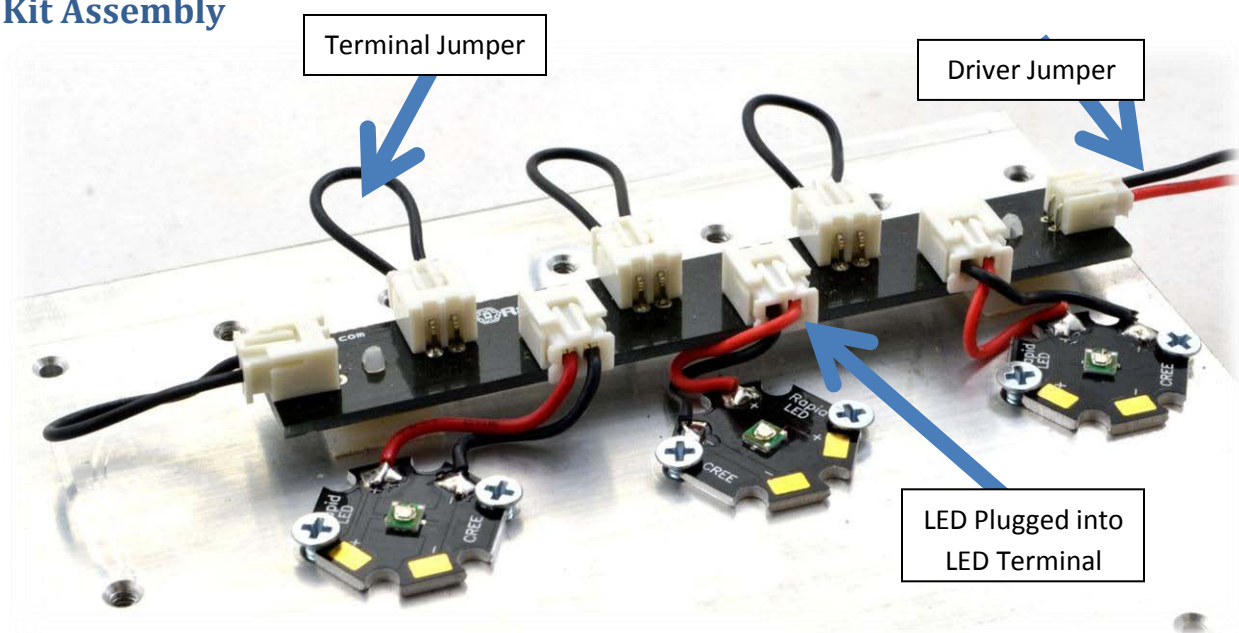
Dimmable Driver Controller and Driver Output Current Adjustment

If you are using a dimmable driver, it is assumed you already have functional dimming equipment such as a [lighting controller](#), potentiometer circuit like our [DIY 2 color Dimming Kit](#) (requires soldering), or other dimming control. Dimming equipment is not included in the kit because there are many types of lighting controllers and we do not want to limit you to a particular dimmer or controller.

If you do not have a method of dimming your driver, you will need to acquire dimming equipment before continuing or purchase a [10V AC Adapter](#) from our website so you can run the (ELN-60-48 series) driver at 100% intensity and then find dimming equipment later on.

The ELN-60-48 series drivers are set to output 1.3A from the factory. XP-E LEDs can handle a maximum of 1A. If you use XP-E LEDs, you will have to adjust the maximum current of the driver down to a maximum of 1A or risk damaging to your LEDs. Please review our document [Using Your Dimmable Driver](#) for details regarding current adjustment.

Kit Assembly



3 LEDs Connected to Terminal Board

Here is how to assemble your kit:

1. *******Ensure there is no power to the LED Driver until ALL wiring is complete *******
2. Secure your LEDs to a heatsink (see page 7 for details). You can screw them into a drilled and tapped heatsink from our website, use the included thermal adhesive, or use a Bergquist Thermal Pad if you have them (not included). Ensure the LEDs are not spaced too far apart to plug in to the LED Terminals on the Terminal Board!

Attaching Your LEDs to a Heatsink

When attaching LEDs to a heatsink, you must put a thin layer of thermal compound or adhesive between the LED star and the heatsink (you can also use Bergquist Thermal Pads). The thermal grease ensures proper thermal conductivity of heat away from the LED. Cool LEDs have a long lifetime and stay bright. A very small dab of grease on the back of each LED is all that is necessary. More is NOT better. Too little will lower thermal conductivity and too much will create a mess. A thin layer works best. All of these guidelines apply to thermal adhesive, but ensure to press down on the LED to spread the adhesive evenly underneath the LED as you will not be using screws to tighten it down. The photo below is about how much you should use.

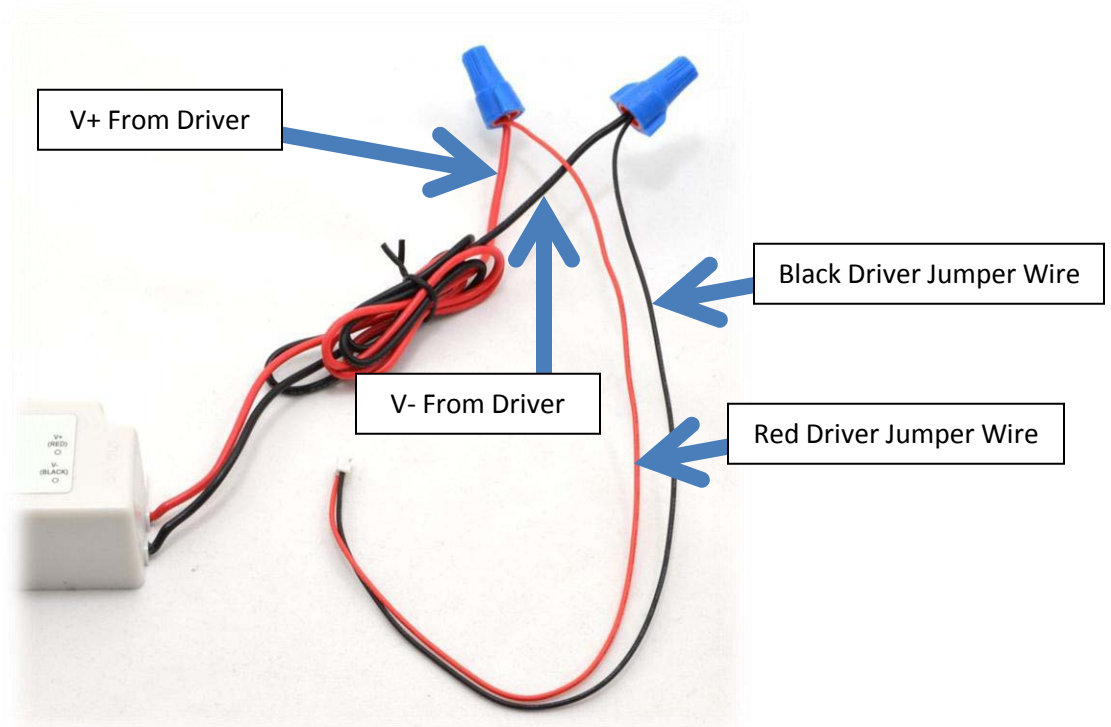


Here's an example of some nicely attached LEDs on an anodized heatsink:



3. Use the included wire nuts to connect the red driver jumper wire to the V+ (Red) wire on your driver. Do the same for the black driver jumper wire, but connect it to the V- (Black) wire on your driver.

Wiring the Driver Jumper to your Driver



Driver Jumper connected to LED Driver

As can be seen in the photo above, connect the red driver jumper wire to the V+ (Red) wire on the driver and connect the black driver jumper wire to the V- (Black) wire on the driver. It is easiest to cut off the tinned (soldered) ends of the V+ and V- wires and then strip off 3/8" of the wire jacket to expose individual wire strands before attempting to use the wire nut. After you have stripped wire, twist the corresponding driver jumper wire together with it and then secure the wire nut to the pair of twisted wire by screwing it on until secure.

4. Gently insert the driver jumper wire into the Terminal Board. It helps to pinch the power terminal between your thumb and forefinger to stabilize it when inserting the driver jumper wire.
5. Insert the mounting posts into the Terminal Board, peel off the self-adhesive backing, and then mount the Terminal Board in a manner such that the LEDs can plug into a nearby LED Terminal. The surface to which the mounting posts adhere must be clean, dry, smooth, and flat.
6. Plug your LEDs into the Terminal Board
7. Insert Terminal Jumpers (connectors with the little black loop of wire) into any empty LED Jumpers on the Terminal Board.
8. Ensure all terminals on the Terminal Board have something plugged into them. To repeat, all terminals **MUST** have something plugged into them. A Board to Board Jumper, Terminal Jumper or LED must be plugged into them.

9. Wire the AC Power to your driver.

Wiring your driver to AC Power

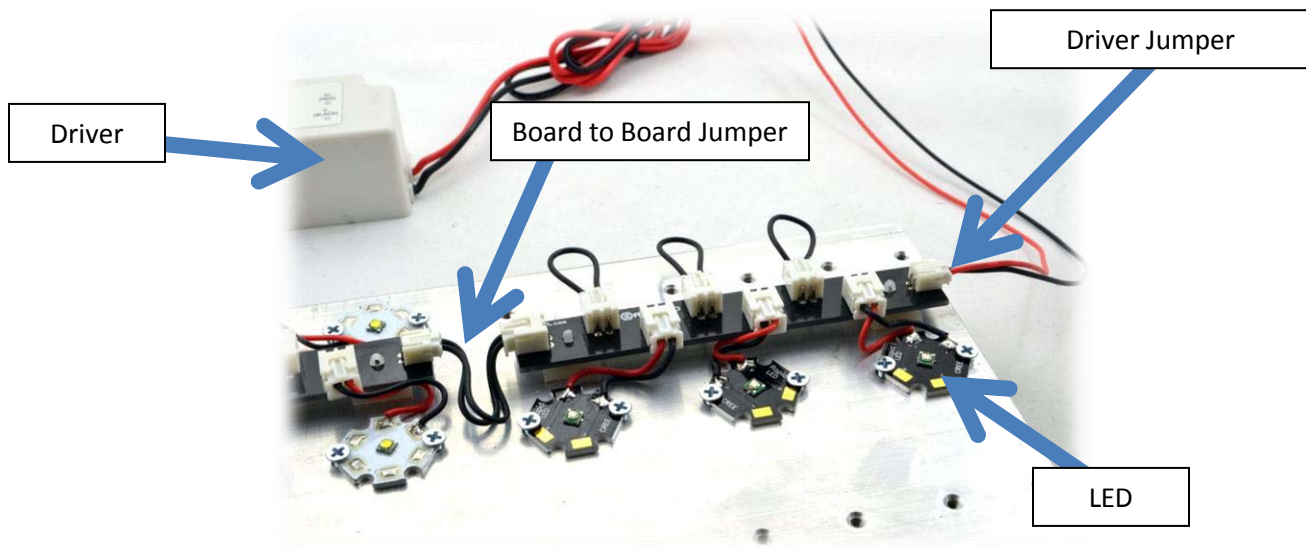
The AC Line and Neutral, or ACL and ACN wires, which are blue and brown, connect to the power cord included in our kits. Strip the white and black wires of the power cord (green is ground and unused) and attach them to the blue and brown wires on the driver with the included wire nuts. Order is not important because AC current alternates.

NOTE: If your driver has dimming functionality please read our dimmable driver documentation regarding current (SVR2) adjustment before powering it up or you risk BURNING OUT all of your LEDs.



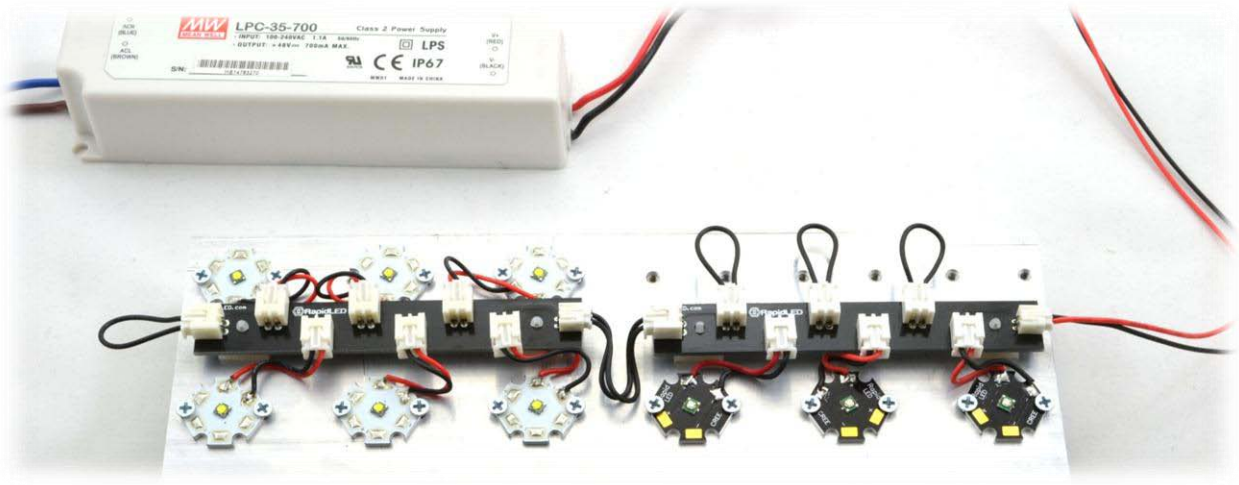
10. Ensure all wiring is complete.
11. If necessary, [adjust your dimmable driver](#)
12. Plug in your Driver and Enjoy!

Extra Photos:



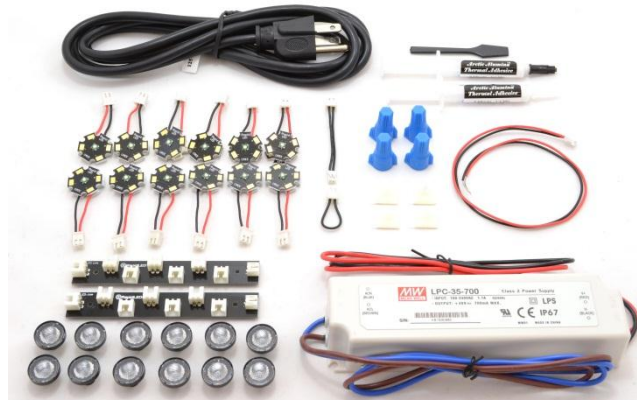
Two Terminal Boards Connected via Board to Board Jumper

Note all terminals on Terminal Board have something plugged into them



9 LEDs connected to LPC-35-700

Kit Contents



12 LED Plug-n-Play Retrofit Kit



Terminal board

The terminal board has one **Power Terminal** and 7 **LED Terminals**. The Power Terminal is smaller than the LED Terminals. Two types of jumper can plug in to the Power Terminal. The first type of jumper is the **Driver Jumper**, which connects the LED driver to the **Power Terminal** on the Terminal Board. The second is a **Board to Board Jumper**, which is used to connect two terminal boards together. There are two holes in the terminal board. The **mounting posts** snap into these holes.

The LED Terminals can have one of three types of jumpers connected to them. First is the LED which has a jumper cable attached to it. Second is the **Terminal Jumper** which is a place holder for the other jumpers – if you don't want to utilize a LED terminal, plug a Terminal Jumper into it. Third is a **Board to Board Jumper**, which allows you to connect to another Terminal Board.

All terminals on the terminal board must have something plugged into them for the circuit to be complete. If you have an open terminal on the terminal board, the circuit will not be complete and your LEDs will not light up. Reminder: NEVER PLUG IN YOUR LED DRIVER TO AC POWER UNTIL ALL WIRING IS COMPLETE.



Terminal Jumper

If necessary, the terminal jumper plugs into an LED Terminal on the Terminal Board to take the place of an LED. Each terminal board can handle up to 7 LEDs. If you want to use only 3 LEDs, you would use four terminal jumpers to take the place of the LEDs on the terminal board. You must plug an LED, Terminal Jumper, or board to board jumper in every LED Terminal (all terminals on the Terminal Board must have something plugged into them).



Driver Jumper

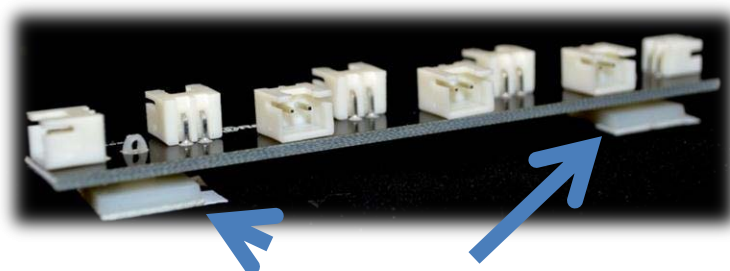
The Driver Jumper plugs into the small terminal on the terminal board. In the first picture of this document, which is of the terminal board, the small terminal is the rightmost terminal in the picture. Be gentle when plugging the driver jumper into the terminal board – pinch it between your thumb and forefinger when inserting jumpers into the power terminal to stabilize it during jumper insertion.

The red wire of the driver jumper connects by wire nut to the V+ (Red) wire of your LED driver and the black wire of the driver jumper connects by wire nut to V- (Black) on your LED driver.



Board to Board Jumper

The Board to Board Jumper is used to connect two terminal boards together. You can use any socket you like, one end however must plug into the small power terminal as there is only one on each board. Again, be gentle when plugging the jumper into the power terminal. Press the power terminal between your thumb and forefinger to stabilize it when inserting a jumper. If a board to board jumper is used, the same rule applies and the second board (the one the board-to-board jumper is plugged into) must also have every terminal filled in. You cannot use a board-to-board jumper in place of a Terminal Jumper.



Mounting Posts

The Terminal Board Mounting Posts snap into the two holes on the Terminal Board. They are self-adhesive. Remove the adhesive backing and adhere to a clean, smooth, flat and dry surface.

Frequently Asked Questions (FAQ)

Q: How many LEDs can I use with one driver?

A: You can connect two terminal boards together to power up to 13 LEDs using the Mean Well LPC-35-700 or the Mean Well ELN-60-48-D or P drivers. If you have a more powerful driver that can run many strings in parallel (such as the HLG series), please contact us at staff@rapidled.com so we can determine the best wiring solution.

The minimum number of LEDs for the LPC-35-700 is 3 XP-E or XP-G

The minimum number of LEDs for the ELN-60-48D is 9 XP-E or XP-G

Q: Can the LEDs connected to the Terminal Board be different types and or colors?

A: Yes. The LEDs can be different, but you must not exceed the maximum current the LEDs are rated for. As an example, XP-G LEDs can handle 1.5A maximum, whereas XP-E LEDs can handle a maximum of 1A. If you connect XP-G and XP-E LEDs to the same circuit, which means your LEDs are on the same terminal board or boards connected via board to board connectors, you would have to limit maximum current to 1A. Please note that 1A is the absolute maximum for XP-E LEDs – they must be cooled well to run at 1A.